## REMARKS

### Status Summary

Claims 1, 3-8, 10-20, 25, 27-32, and 34-43 are currently pending in the present application and claims 1, 3-8, 10-20, 25, 27-32, and 34-43 presently stand rejected. By this Amendment, claims 1 and 25 have been amended to better clarify and more particularly claim the present subject matter. No new matter has been added. Reconsideration of the application as amended and based on the arguments set forth hereinbelow is respectfully requested.

### Rejection of Claims 1, 3-8, 10, 12, 13, 17, 25, 27-32, 34, 36 and 40 Under 35 USC §102(b) as Being Anticipated by Englebert et al. U.S. 4,741,941 ("Englebert")

The Examiner has rejected claims 1, 3-8, 10, 12, 13, 17, 25, 27-32, 34, 36 and 40 under 35 USC §102(b) as being anticipated by Englebert upon the contention that this reference teaches a fibrous network formed of the recited fibers having a size of 1 to 100 microns. Further, the Examiner contends that the three-dimensional network can have truncated cones of a height of .3 mm to 25 mm, that other layers are shown attached to the network, and that the network can be formed by thermoforming and spun-bonding. The Examiner further contends that the characteristic limitations as to the compressibility and anisotrophy ratio are inherent in the prior art since the prior art forms the network from the same size filaments in the same manner and the claims fail to structurally distinguish therefrom. Applicant respectfully but strongly disagrees and traverses this rejection.

Applicant notes that the fibrous network or substrate disclosed in Englebert comprises fibers that are deposited onto a shaped surface and thermally formed or interbonded in a manner dependent upon the forming surface (e.g., Englebert column 5, lines 13-18). Since the projections of Englebert are formed by the deposition of fibers onto the shaped surface to form the substrate, the resulting fabric is not molded after the substrate is formed in order to obtain the projections extending therefrom as is applicant's fabric. Furthermore, due to pressure differentials caused by forming by deposition of fibers onto the shaped surface, Englebert teaches that the fibers in the projection areas of the substrate are oriented in a parallel direction to a higher degree than those fibers in the land areas (e.g., Englebert column 6, lines 19-28), which is not true in applicant's substrate. This method of production and resulting particular fabric attribute is desired in order to increase capillaries within and between the fibers for facilitation of fluid transport (e.g., Englebert column 6, lines 32-36). Englebert in no manner teaches applicant's deep molded non-woven fabric (sample attached for the Examiner's inspection) comprising a multiplicity of compressible projections extending from the planar fabric surface which return to their shape after being substantially compressed and including a constant anisotrophy ratio throughout the non-woven substrate to provide a constant random fiber orientation distribution throughout the substrate used to form the deep molded structure.

By contrast, applicant's invention as now claimed calls for a three-dimensional flexible, deep molded non-woven fabric formed from a planar flexible non-woven

substrate that has been processed through thermo-forming or calender molding equipment to form compressible projections extending from the planar surface which return to their shape after being substantially compressed. Further, the non-woven substrate is expressly claimed as a non-meltblown, non-woven fabric manufactured from spun-bonded or melt-bonded filaments and/or fibers with a diameter of less than 100 microns and having a constant anisotrophy ratio $f_p$ between -½ to +½ throughout the substrate to provide a generally constant random fiber orientation distribution throughout the substrate.

As is described throughout the original application as filed, the non-woven planar substrate of the present invention is formed prior to molding with a constant random structure anisotropy (uniform random fiber orientation distribution resulting from the anisotrophy ratio of -½ to +½) in order to provide a fabric with superior resilience and compression recovery in the projections formed by molding. In contrast, and as described above, the projections of the Englebert substrate are formed by the deposition of fibers onto a shaped surface wherein pressure differentials cause the fibers in the projection areas to be oriented in a parallel direction to a higher degree than those fibers in the land areas (i.e., there is not a generally constant random fiber orientation throughout both the projections and land areas). The method of production and resulting fabric of Englebert is desired in order to increase capillaries within and between the fibers for facilitation of fluid transport (and are not related to projection resiliency and compression recovery).

In no manner can Englebert be contended to teach the applicant's inventive deep molded non-woven fabric as now claimed in the application and which is structurally distinct from the fabric of Englebert since the fiber in the land areas of the Englebert substrate are less oriented in a parallel direction than those fibers in the projection areas. Applicant's non-woven substrate comprises fibers that have a generally constant random fiber orientation distribution (a generally constant degree of random fiber orientation throughout the substrate used to form the molded structure).

Rejection of Claims 1-8, 12, 13, 15-17, 25, 27-32, 36, 38, 39 and 40 Under 35 USC §102(b) as Being Anticipated by or, in the Alternative, Under 35 USC §103(a) as Being Obvious over Kim et al. U.S. 5,731,062 ("Kim")

The Examiner has rejected claims 1-8, 12, 13, 15-17, 25, 27-32, 36, 38, 39 and 40 under 35 USC §102(b) as being anticipated by or, in the alternative, under 35 USC §103(a) as being obvious over Kim upon the contention that this reference teaches a fiber network formed of polyethylene terephthalate (PET) fibers of a diameter of at least about .1 mm (100 microns). Further, the Examiner contends that a prima facie case of obviousness also exists if the ranges overlap and it would have been obvious to use smaller-sized fibers in order to form a softer three-dimensional network. The Examiner further contends that Kim also teaches other layers laminated to the substrate and that the characteristic limitations as to the compressibility and anisotrophy ratio are inherent in the prior art since the prior art forms the network from the same size filaments in the same manner and the claims

fail to structurally distinguish therefrom. Applicant strongly disagrees and respectfully traverses the rejection.

Kim discloses a thermoplastic three-dimensional fiber network formed from textile fabrics that have projections and optical depressions which are compressible and return to their original shape after being compressed. While there is a non-teaching and speculative reference to "non-woven textile fabrics" at column 2, line 60, of the Summary of the Invention, the patent of Kim, including the detailed description and claims, teaches and describes only knitted and woven constructions (and not non-woven fabrics) formed from fibers of at least 100 microns and normally much larger diameter fibers. Furthermore, Kim teaches that the fibers in the projections are not normally bonded at the fiber crossover points while applicant's invention calls for bonded crossover points in independent claim 25 and all claims depending therefrom. Kim in no manner teaches applicant's deep molded non-woven fabric comprising a multiplicity of compressible projections extending from the planar fabric surface and which return to their shape after being substantially compressed and having a constant random anisotrophy ratio throughout the non-woven substrate to provide a generally constant random fiber orientation distribution throughout the substrate.

Specifically, applicant's invention as now claimed calls for a three-dimensional flexible deep molded non-woven fabric formed from a planar flexible non-woven substrate that has been processed through thermo-forming or calender molding equipment to form compressible projections extending from the planar surface which

return to their shape after being substantially compressed. Further, the non-woven substrate is expressly claimed as a non-meltblown, non-woven fabric manufactured from spun-bonded or melt-bonded filaments and/or fibers with a diameter of less than 100 microns and having a constant anisotrophy ratio $f_p$ between -½ to +½ throughout the substrate to provide a generally constant random fiber orientation distribution throughout the substrate. Independent claim 25 (and claims 27-32, 34, 36 and 40 depending therefrom) additionally recites that applicant's fibers are bonded at the fiber-to-fiber crossover points during the molding process to provide substantial rigidity to the flexible textile substrate.

There is no teaching in Kim of a non-woven substrate being provided with a constant anisotrophy ratio throughout the substrate that provides a generally constant random fiber orientation distribution throughout the substrate. In fact, the patent of Kim, teaches and describes only knitted and woven constructions formed from fibers of at least 100 microns and normally much larger diameter fibers. These constructions would not have a generally constant fiber orientation throughout the fabric substrate. Additionally, there is no teaching in Kim of the fiber-to-fiber crossover points being bonded as called for in independent claim 25 and dependent claims 27-32, 34, 36 and 40, and Kim actually teaches away from the crossover points being bonded (e.g., Kim column 1, lines 61-66). Thus, in no manner can Kim be contended to teach the applicant's inventive deep molded non-woven fabric as now claimed in the application and which is structurally distinct from the fabric of Kim.

Rejection of Claims 11, 14, 18-20, 35, 37 and 41-43 Under 35 USC §103(a) as Obvious over Englebert in view of Bodaghi et al. U.S. 5,993,943 ("Bodaghi")

The Examiner contends that Englebert teaches the invention substantially as recited except for the sheath/core fibers and width of the projections. Further, the Examiner contends that Bodaghi teaches that microfibers can be bi-component (i.e., sheath/core) and/or oriented in order to provide fusing of one fiber to the other in thermoforming or calendering. Thus, the Examiner reasons that it would have been obvious to one having ordinary skill in the art to take the teaching of Englebert to use bicomponent fibers, as taught by Bodaghi, in order to supply sufficient bonding means thereto when the fibers are thermoformed into a desired shape. The Examiner additionally contends that the width of the projections, per claims 11 and 35, is deemed obvious to one of ordinary skill in the art motivated by the fact that Englebert discloses that the size of the projection can vary depending on how they are formed and a change of shape and/or size is generally within ordinary skill in the art. Applicant disagrees and respectfully traverses this rejection.

Bodaghi is directed to meltblown fibrous webs of oriented microfibers wherein the webs are prepared by extruding molten fiber-forming material through orifices in a die into a high-velocity gaseous stream which impacts the extruded material and attenuates it into fibers. The fibrous web substrate is formed as a meltblown web, contrary to applicant's "non-meltblown" web, and Bodaghi further would not provide applicant's generally constant random fiber orientation throughout his web substrate. Thus, applicant's novel three-dimensional flexible deep molded non-woven fabric is in

no way taught or suggested by the combination of the Bodaghi and Englebert references which only teach or suggest a meltblown fabric formed by the meltblown deposition of fibers onto a shaped surface wherein the fibers in the projection areas are oriented in a parallel direction to a higher degree than the fibers in the land areas. The addition of the teachings of Bodaghi cannot correct the deficiencies of Englebert in teaching or suggesting applicant's novel deep molded three-dimensional non-woven fabric having a constant anisotrophy ratio throughout the non-woven substrate that provides a generally constant random fiber orientation distribution throughout the substrate.

More specifically, applicant's invention as now claimed calls for a three-dimensional flexible deep molded non-woven fabric formed from a planar flexible non-woven substrate that has been processed through thermo-forming or calender molding equipment to form compressible projections extending from the planar surface which return to their shape after being substantially compressed. Further, the non-woven substrate is expressly claimed as a non-meltblown, non-woven fabric manufactured from spun-bonded or melt-bonded filaments and/or fibers with a diameter of less than 100 microns and having a constant anisotrophy ratio $f_p$ between -½ to +½ throughout the substrate to provide a generally constant random fiber orientation distribution throughout the substrate.

In no manner can the combination of Bodaghi and Englebert be contended to teach or suggest the applicant's inventive deep molded non-woven fabric as now claimed in independent claims 1 and 25 of the application. Based on arguments

presented above, since claims 11, 14, and 18-20, and 35, 37 and 41-43 depend from allowable independent claims 1 and 25, respectively, applicant respectfully submits that these dependent claims are also now allowable.

Rejection of Claims 10, 11, 14, 18-20, 34, 35, 37 and 41-43 Under 35 USC §103(a) as Obvious over Kim in view of Bodaghi

The Examiner contends that Kim teaches the invention substantially as recited except for the sheath/core fibers and specific size of the projections. Further, the Examiner contends that Bodaghi teaches that microfibers can be bi-component (i.e., sheath/core) and/or oriented in order to provide fusing of one fiber to the other in thermoforming or calendering. Thus, the Examiner reasons that it would have been obvious to one having ordinary skill in the art to take the teaching of Kim to use bicomponent fibers, as taught by Bodaghi, in order to supply sufficient bonding means thereto when the fibers are thermoformed into a desired shape. The Examiner additionally contends that the specific size of the projections is deemed obvious to one of ordinary skill in the art motivated by the fact that Kim discloses that the size and/or shape of the projections can vary to suit a particular application and a change of shape and/or size is generally within ordinary skill in the art. Applicant respectfully disagrees and traverses this rejection.

As discussed above, Bodaghi is directed to meltblown fibrous web substrate of oriented microfibers, the fibrous web substrate being formed as a meltblown web which is contrary to that of the present invention. Further, the novel three-dimensional flexible deep molded non-woven fabric comprising a multiplicity of

compressible projections which return to their shape after being substantially compressed as taught by the present disclosure is in no way taught or suggested by the combination of the Bodaghi and Kim references which would result in a meltblown fabric including fiber-to-fiber crossover points that are not bonded. Furthermore, as described above, while there is a non-teaching and speculative reference to "non-woven textile fabrics" at column 2, line 60, of the Summary of the Invention, the entire patent application of Kim including the detailed description and claims teach and describe only knitted and woven constructions. As such, the addition of the teachings of Bodaghi cannot correct the deficiencies of Kim in teaching or suggesting applicant's novel deep molded three-dimensional non-woven fabric having a multiplicity of compressible projections which return to their shape after being substantially compressed that includes a constant anisotrophy ratio throughout the non-woven substrate to provide a generally constant random fiber orientation distribution throughout the substrate and in which the fiber-to-fiber cross over points are bonded during the molding process.

Based on arguments presented above, and since claims 10, 11, 14, and 18-20, and 34, 35, 37 and 41-43 depend from allowable independent claims 1 and 25, respectively, applicant respectfully submits that these dependent claims are also now allowable.

## Summary

Summarily, none of the references cited by the Examiner, either alone or in combination, teach applicant's novel and desirable deep molded non-woven fabric. Specifically, the prior art references neither teach nor suggest the use of non-meltblown non-woven fabric formed by melt-bonding or spun-bonding of fibers with a diameter of less than 100 microns and with a constant anisotrophy ratio $f_p$ between -½ to +½ throughout the substrate to provide a constant random fiber orientation distribution throughout the substrate in order to achieve a soft and resilient hand non-woven molded fabric comprising a multiplicity of resiliently compressible projections defined by the non-woven molded fabric. Additionally, the prior art references neither teach nor suggest applicants' deep molded non-woven fabric wherein the fibers are bonded at the fiber-to-fiber crossover points during the molding process to provide substantial rigidity to the flexible textile substrate.

## CONCLUSION

In light of the above Amendments and Remarks, it is respectfully submitted that all of pending claims 1, 3-8, 10-20, 25, 27-32 and 34-43 in the present application are now in proper condition for allowance, and an early notice to such effect is earnestly solicited.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Amendments and Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Official Action.

## DEPOSIT ACCOUNT

The Commissioner is hereby authorized to charge any fees associated with the filing of this correspondence to Deposit Account No. **50-0426**.

Respectfully submitted,

JENKINS, WILSON & TAYLOR, P.A.

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